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EXAMINER
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MACAULEY, SHERIDAN R

ART UNIT	PAPER NUMBER
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1651

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11/26/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/523,230

**Applicant(s)**

HUGHES, JONATHAN

**Examiner**

Sheridan R. MacAuley

**Art Unit**

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12, 14-17 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

A response and amendment was received and entered on September 19, 2007.

All arguments and evidence have been fully considered. Claims 1-21 are pending.

Claims 11, 12, 14-17 and 21 are withdrawn from consideration due to a previous restriction requirement. Claims 1-10, 13 and 18-20 are examined on the merits in this office action.

### ***Election/Restrictions***

1. In the response mailed on May 21, 2007, applicant elected without traverse one species from each of species groups A-F. As discussed in the office action mailed on June 13, 2007, this reply was treated as an election without traverse and thus the restriction requirement was made final.

2. However, in the reply filed on September 19, 2007, applicant traverses the withdrawal of claims 14-17 as being drawn to a nonelected invention. In the requirement for restriction mailed in February 28, 2007, it was clearly stated that election was required of the flocculation methods recited in claims 13-17. An example was provided that applicant could elect the subject matter of claim 13 or claim 15. Thus, as shown by the record, the election was required of one of the flocculation methods recited in claims 13-17. The traversal is on the ground(s) that the "applicant's do not see how there can be non-unity of invention between" the elected claim 13 and nonelected claims 14-17.

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3. In order to be entitled to reconsideration or further examination, the reply by the applicant must be reduced to a writing which distinctly and specifically points out the supposed errors in the examiner's action and must reply to every ground of objection and rejection in the prior Office action. The applicant is required to specifically point out the reasons on which he or she bases his or her conclusions that a requirement to restrict is in error. A mere broad allegation that the requirement is in error does not comply with the requirement of 37 CFR § 1.111 (MPEP 818.03(a)).

4. In the reply filed on May 21, 2007, applicant elected a species (i.e. the species recited in claim 13) and did not distinctly and specifically point out the supposed errors in the restriction requirement. Further, applicant has not distinctly pointed out the supposed errors in the reply filed on September 19, 2007. Applicant states that they "do not see how there can be non-unity of invention between" the elected claim 13 and nonelected claims 14-17. Thus, the traversal fails to comply with 37 CFR 1.111.

5. Even if the applicant's traversal of the species election requirement was compliant, it is not found persuasive because the search of the subject matter claim 13 did not result in the subject matter of nonelected claims 14-17. Also, the subject matter of claims 13-17 is mutually exclusive from each other (for instance, claim 14 recites an anionic microparticle followed by a non-ionic polymer, while claim 15 recites a cationic polymer followed by an anionic microparticle). The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

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6. The requirement is still deemed proper and is therefore made FINAL.
7. Claims 11, 12, 14-17 and 21 are withdrawn from consideration as being drawn to a nonelected invention. Claims 1-10, 13 and 18-20 are examined on the merits in this office action.

***Claim Rejections - 35 USC § 112***

8. Rejections under 35 USC 112 have been withdrawn due to amendment.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 3, 5 and 18-20 stand rejected under 35 U.S.C. 102(b) as being anticipated by Brink (US Pat. 4,384,897, 1983). Claim 1 recites a method of producing a fermentation product comprising the steps of: (i) forming an acidified suspension of particulate plant-derived material comprising a first polysaccharide which is more readily hydrolysable and a second polysaccharide which is more difficult to hydrolyze, (ii) allowing the first polysaccharide to undergo hydrolysis by action of an acid at a temperature of at least 50 C under conditions such that the first polysaccharide is hydrolyzed and thereby forming a mixture of an aqueous liquor containing dissolved sugar and a solid residue containing the second polysaccharide, (iii) subjecting the

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mixture to one or more separation steps in which the solid residue and aqueous sugar mixture are subsequently separated from each other, (iv) optionally washing the residue substantially free of the acid and the sugar, (v) passing the solid cellulosic residue to a further treatment stage in which the residue is subjected to the action of a dilute acid at a temperature of at least 50 C, such that the second polysaccharide is hydrolyzed and thereby forming a mixture of an aqueous liquor containing dissolved sugar and a solid residue, (vi) subjecting the mixture to one or more separation stages in which the solid residue and aqueous sugar mixture are separated from each other, (vii) optionally washing the residue substantially free of the acid and the sugar, (viii) adjusting the pH of the aqueous liquor from stages (iii), (iv), (vi) and (vii) to a pH of at least 4, (ix) passing the aqueous liquor from stage (viii) to a fermentation stage where the dissolved sugars are acted upon by a microorganism in a fermentation broth to produce a fermentation product, and (x) separating the fermentation product from the broth, wherein the method is characterized in that the separation stage in steps (iii) and/or (vi) is assisted by flocculation of a waste by-product, employing one or more flocculation agents selected from the group consisting of water-soluble polymers, water-swellaable polymers and charged microparticulate materials. Claim 2 recites the limitation that the plant-derived material of claim 1 comprises softwood biomass. Claim 3 recites the process of claim 1 wherein the plant-derived material is cellulosic and comprises hemicellulose as the first polysaccharide and cellulose as the second polysaccharide. Claim 5 recites the limitation that the acid of claim 1 is sulfuric acid. Claim 18 recites the limitation that the solid residue of claim 1 comprises lignin. Claim 19 recites the limitation that the

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fermentation product of claim 1 is ethanol. Claim 20 recites the method of claim 1 wherein the fermentation product is separated from the broth by passing the broth comprising the fermentation product into a distillation stage, where the fermentation compound is collected as a distillate and the residue "still bottoms" is removed.

11. Brink discloses a method of producing a fermentation product comprising the steps of forming an acidified suspension of particulate plant derived material comprising a first polysaccharide which is more readily hydrolysable and a second polysaccharide which is more difficult to hydrolyze (col. 1, lines 4-10; col. 1 lines 16-21; col. 1 lines 36-40; col. 2, lines 32-41). Brink discloses hydrolysis of the first polysaccharide by action of an acid at a temperature of at least 50 C (col. 1, lines 16-21; col. 1, lines 36-40), subjecting the mixture to a separation step in which the solid residue and aqueous sugar mixture are separated from each other (col. 2, lines 48-52), passing the solid cellulosic residue to a further treatment stage in which the residue is subjected to the action of acid at a temperature of at least 50 C (col. 3, lines 58-63; col. 1, lines 25-27), subjecting the mixture to a separation stage in which the solid residue and aqueous sugar mixture are separated from each other (col. 4, lines 10-12), adjusting the pH of the aqueous liquor (col. 5, line 61-67), passing the aqueous liquor from a fermentation stage where the dissolved sugars are acted upon by a microorganism in a fermentation broth to produce a fermentation product (col. 1, lines 54-56), and separating the fermentation product from the broth (col. 1, lines 56-58). Brink teaches that the separation stage is assisted by flocculation employing a flocculation agent consisting of charged microparticulate materials (col. 10, lines 59-63). Brink teaches that the acid

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can be sulfuric acid (col. 9, lines 17-22), that the plant derived material is cellulosic, the first polysaccharide comprises hemicellulose and the second polysaccharide comprises cellulose (abstract), and that the solids may comprise lignin (col. 4, lines 29-35). Brink teaches that the plant material can comprise softwood biomass, i.e. woodchips prepared from papermaking, forest waste such as stumps roots, branches; one skilled in the art would recognize that this would comprise softwood as well as hardwood (col. 2, lines 32-41). Brink teaches that the fermentation product may be ethanol, and that the ethanol may be separated from the broth by distillation (col. 1, lines 54-58, col. 8, lines 44-51).

12. Therefore, Brink anticipates all of the limitations of the cited claims.

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.



15. Claims 4, 6 and 7 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Brink (US Pat. 4,384,897, 1983) in view of Brelsford (US Pat. 5,411,594, 1995). Claims 1, 2 and 5 are discussed above. Claim 4 recites the process of claim 1 wherein the acid has a pKa of below 4 and has a concentration of up to 2% by weight. Claim 6 recites the process of claim 1 wherein the hydrolysis of the first polysaccharide is conducted at a temperature of between 120 and 220 C for a period of 1 minute to 15 minutes. Claim 7 recites the process of claim 1 wherein the hydrolysis of the second polysaccharide is conducted at a temperature of between 120 and 220 C for a period of 1 minute to 15 minutes.
16. The teachings of Brink are discussed above. Brink also teaches that the first and second hydrolysis steps are carried out at temperatures of 140 to 220 C and 160 to 240 C, respectively (col. 1, lines 16-40). Brink et al. teaches the use of sulfuric acid, which has a pKa below 4 (CRC Handbook of Chemistry and Physics, p. 8-41). Brink is silent regarding the time period used for the first and second hydrolysis steps and the concentration of acid that may be used in the method.
17. Brelsford teaches a method of producing a fermentation product from lignocellulosic material comprising a two stage hydrolysis process wherein the hydrolysis of the first and second polysaccharide is conducted for 1 to 20 minutes at 135 to 195 C and 0.5 to 20 minutes at 165 to 260 C, respectively (col. 2, line 65-col. 3, line 43). Brelsford also teaches the use of 2% sulfuric acid during the hydrolysis of the first and second polysaccharides, and teaches that the lignocellulosic material may be softwood (col. 4, line 56-col. 5, line 29, col. 9, lines 4-6).

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18. At the time of the invention, a method of producing a fermentation product comprising steps nearly identical to the claimed process steps was known in the art, as taught by Brink et al. It was further known in the art that dilute sulfuric acid could be used in the hydrolysis step, and that the hydrolysis claimed hydrolysis time could be used. The motivation to combine the teachings discussed above is provided by Brelsford et al., who teach that the two-stage hydrolysis using dilute acid reduces the amount of time and energy required for the conversion of cellulose to glucose (col. 4, lines 25-40).

19. One skilled in the art would have had a reasonable expectation of success in combining the teachings discussed above because the hydrolysis and fermentation methods taught by the references are well known in the art and both methods use the same starting material, i.e. lignocellulosic material, to produce sugars which are used for the production of a fermentation product. It would therefore have been obvious to one of ordinary skill in the art to combine the teachings discussed above to arrive at the claimed invention.

20. Claims 8-10 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Brink in view of Kuo et al. (US Pat. 5,529,699, 1996). Claim 1 is discussed above. Claim 8 recites the process of claim 1 wherein the flocculating agent is a water-soluble polymer. Claim 9 recites that the polymer of claim 8 is former from a water-soluble monomer or blend of monomers. Claim 10 recites that the polymer of claim 8 is a polyacrylate salt. Claim 13 recites the process of claim 1 wherein the flocculation is

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effected by employing a water-soluble or water-swellaable polymer and a charged microparticulate material.

21. The teachings of Brink are discussed above. Brink does not teach the use of a water-soluble polymer as the flocculant, specifically one that is made from a water-soluble monomer or blend of monomers, or one that is a polyacrylate salt. Brink does not teach flocculation using a water-soluble polymer and a charged microparticulate material.

22. Kuo et al. teaches the use of flocculants as aids in pulp and papermaking systems (col. 9, lines 47-49). The flocculants of Kuo et al. that the flocculants can be water-soluble polymers formed from a water soluble blend of monomers, and that the flocculants can be polyacrylate salts (col. 3, lines 47-60, col. 10, lines 24-34). Kou et al. also teach that the flocculation can be effected using a water-swellaable polymer and a charged microparticulate material (note that several of the suitable particulates taught by the reference are charged particles, e.g. clay and alumina; col. 9, line 56-col. 10, line 12).

23. At the time of the invention, a method for the production of a fermentation product from lignocellulosic material comprising nearly all of the claimed elements was known, as taught by Brink. It was further known that the claimed water soluble polymers, specifically in combination with charged microparticulates could be used for the separation of pulp in papermaking systems, as taught by Kuo et al. One skilled in the art would be motivated to combine the teachings discussed above because Kuo et al. teach that the charged polymers are desirable for use as flocculants because their

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charge is pH-independent (col. 3, lines 26-29), which would be desirable in the method taught by Brink et al. because it is conducted under acidic conditions.

24. One of ordinary skill in the art would have had a reasonable expectation of success in combining the teachings of Brink and Kuo et al. because both inventions use flocculants for the same purpose, i.e. the separation of lignocellulosic material (note that this would be implicit to the teachings of Kuo et al., who disclose using the flocculants as drainage/retention aids for pulp in papermaking). It would therefore have been obvious to one of ordinary skill in the art to combine the teachings discussed above to arrive at the claimed invention.

25. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

### ***Double Patenting***

26. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

27. Claims 1-3, 5, 8-10 and 13 and 18-20 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4, 5, 7, 8, 10 and 11 of copending Application No. 10/523229 in view of Brink (US Pat. 4,384,897, 1983). Claims 4, 5, 7, 8, 10 and 11 of copending Application No. 10/523229 are directed to a method of producing a fermentation product nearly identical to the method claimed in the cited claims of the instant application. The claims of the copending application do not recite first hydrolyzing readily hydrolysable polysaccharides and to subsequently hydrolyzing polysaccharides which are more difficult to hydrolyze. The teachings of Brink are discussed above, who teach the additional limitations claimed by the instant application. The motivation to combine these teachings is provided by Brink, who teaches that the 2-stage process enhances the yield of sugars from lignocellulosic materials. One of ordinary skill would have a reasonable expectation of success in using the 2 stage process of Brink in the process claimed in the copending application because the process of Brink was known to be effective in the claimed process of the production of a fermentation product, as discussed above. The cited claims of the instant application are therefore rendered obvious in view of the copending application and the prior art.

28. This is a provisional obviousness-type double patenting rejection.

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29. Claims 1-10, 13, and 18-20 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4, 5, 7, 8, 10 and 11 of copending Application No. 10/523229 in view of Brink (US Pat. 4,384,897, 1983) and further in view of Brelsford (US Pat. 5,411,594, 1995). The claims of the copending application and the teachings of Brink are discussed above; these references do not teach the use of an acid with a concentration up to 2%, or the time periods for the hydrolysis of the first and second polysaccharides. The additional limitations claimed by the instant application are taught by Brink and Brelsford, as discussed above. The motivation to combine these teachings is discussed above. The cited claims of the instant application are therefore rendered obvious in view of the copending application and the prior art.

30. This is a provisional obviousness-type double patenting rejection.

### ***Response to Arguments***

31. Applicant's arguments filed September 13, 2007 have been fully considered but they are not persuasive. Applicant argues that Brink does not teach the flocculating agents according to the instant application. Applicant argues that the process of Brink is directed to the flocculation of solids after neutralization of the acid, whereas the instant application is directed to flocculation of solids prior to neutralization of the acids. Applicant argues that Brink is not directed to the flocculation of solid residue. Applicant argues that there is no motivation to combine the teachings of Brink and Brelsford because Brelsford does not appear to mention flocculants, and because Brelsford also

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teaches that the ferric and ammonium ions also serve as catalysts. Applicant argues that there is no motivation to combine Brink and Kuo because Kuo is not analogous art, and that the combination of the two is hindsight analysis. Applicant argues that the rejections under 35 USC 103 and the double patenting rejections that rely upon Brink should be withdrawn because Brink does not teach the claimed invention.

32. In response to applicant's argument that Brink does not teach the flocculating agents according to the instant application, applicant is directed to Brink, col. 10, lines 59-63, which states "ferric iron and aluminum salts added to the system, in addition to acting as catalysts, also produce flocculent precipitates which aid in bringing down finely dispersed solids." Thus, the salts that are added to the system of Brink form charged microparticulate material, which aids in flocculation. Further, applicant argues that the flocculating agents of Brink are not comprised within the definition of flocculating agents according to the present application, and points to specific parts of the application wherein the definition of flocculating agents is given (p. 8, first par. and middle of p. 10). However, the language used in these parts of the application are directed to examples of flocculating agents useful in the present invention, e.g. "suitably, the flocculating agents is selected from..." and "in a preferred embodiment of the present invention the flocculating agent is..."

33. Although applicant is entitled to be his or her own lexicographer and may rebut the presumption that claim terms are to be given their ordinary and customary meaning by clearly setting forth a definition of the term that is different from its ordinary and customary meaning(s), applicant must do so with reasonable clarity, deliberateness,

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and precision and, if done, must set out his uncommon definition in some manner within the patent disclosure so as to give one of ordinary skill in the art notice of the change.

Where an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim. (See MPEP 2111.01.)

34. Thus, applicant's description of the flocculants that may be used in the instantly claimed invention only serves to exemplify the types of flocculants, and does not set forth a definition with reasonable clarity, deliberateness and precision to give notice to one of ordinary skill in the art of the change. Furthermore, applicant recites in claim 1 that the flocculating agent is selected from a group that comprises charged microparticulate materials. Brink discloses that microparticulate material would be formed upon addition of the salts to the solution, and this material would inherently be charged because it is the result of a conjugation of salts with other materials. Thus, the flocculating agent used by Brink meets the claim limitations of the instantly claimed invention.

35. In response to applicant's argument that the process of Brink is directed to the flocculation of solids after neutralization of the acid, whereas the instant application is directed to flocculation of solids prior to neutralization of the acids, it is noted that the claims recite the term "comprising". The transitional term "comprising" is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See MPEP 2111.03. Thus, a teaching wherein the neutralization of acid occurred prior to the flocculation of solids would still anticipate the instantly claimed invention. Applicant argues that the claim language specifies that the flocculation occurs in an acidic



medium (in steps (iii) and (vi)), as evidenced by the recitation that the residue is washed free from the acid in steps (iv) and (vii). However, steps (iv) and (vii) are claimed to be optional steps. The instantly claimed invention could therefore be anticipated by an embodiment wherein there is flocculation of solids after neutralization of the acid, and wherein the optional washing step is not performed.

36. Thus, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. flocculation of solids in an acidic solution) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

37. In response to applicant's argument that Brink is not directed to the flocculation of solid residue, applicant is directed to Brink, col. 10, lines 59-63, which states "ferric iron and aluminum salts added to the system, in addition to acting as catalysts, also produce flocculent precipitates which aid in bringing down finely dispersed solids." Thus, Brink is directed to the flocculation of finely dispersed solid residue.

38. In response to applicant's argument that there is no motivation to combine the teachings of Brink and Brelsford because Brelsford does not appear to mention flocculants, and because Brelsford also teaches that the ferric and ammonium ions also serve as catalysts. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the

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claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the teachings discussed above is provided by Brelsford, who teach that the two-stage hydrolysis using dilute acid reduces the amount of time and energy required for the conversion of cellulose to glucose (col. 4, lines 25-40). Because the Brelsford reference is used as a reference under 35 USC 103 and need not teach the entire invention as a whole. Brelsford is relied upon in the patentability analysis because it teaches aspects of the claimed invention that were not explicitly set forth in Brink, and the motivation for one of ordinary skill in the art to have combined the teachings of Brelsford and Brink at the time of the invention to arrive at the claimed invention. Thus, there motivation to combine the teachings of Brink and Brelsford to arrive at the claimed invention.

39. In response to applicant's argument that there is no motivation to combine Brink and Kuo because Kuo is not analogous art, and that the combination of the two constitutes hindsight analysis, note that it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the prior art reference is considered to be reasonably pertinent to the particular problem with which the applicant was

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concerned, i.e. the flocculation of particulate plant-derived material. Thus, Kuo is considered analogous art.

40. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The teachings of the cited art provide evidence that the knowledge was within the level of ordinary skill at the time the claimed invention was made, and thus the conclusion of obviousness was not based upon improper hindsight reasoning.

41. In response to applicant's argument that the rejections under 35 USC 103 and the double patenting rejections that rely upon Brink should be withdrawn because Brink does not teach the claimed invention, it is noted that, as discussed above, applicant's arguments regarding the Brink reference have been fully considered, but have not been found to be persuasive. Thus, the claims stand rejected under 35 USC 103 and provisionally rejected on the ground of nonstatutory obviousness-type double patenting.

42. Therefore, applicant's arguments have been fully considered, but they have not been found to be persuasive.

***Conclusion***

43. No claims are allowed.
44. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan R. MacAuley whose telephone number is (571) 270-3056. The examiner can normally be reached on Mon-Thurs, 7:30AM-5:00PM EST, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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SRM

/Ruth A Davis/

Primary Examiner, AU 1651